

Notice of Allowability

Application No.

09/873,445

Examiner

Tesfaldet Bocure

Applicant(s)

YEAP ET AL.

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 6/5/01.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☒ The drawings filed on 05 June 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 2/13/01
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

TESFALDET BOCCURE
PRIMARY EXAMINER

REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The claimed subject matter in claims 1-18 is allowable because the prior arts of record fail to teach or fairly suggest the claimed "apparatus for canceling radio frequency noise occurring in a communications channel, comprising input means (10,12, 16,26) for connection to the communications channel (14) and for extracting therefrom a differential signal (S) and a common mode signal (CM), narrowband noise estimation means (28) responsive to the common mode signal (CM) for producing a first noise estimate signal (E_A) derived from relatively high amplitude narrowband radio frequency interference in one or more narrow frequency bands and ***wideband noise estimation means (30) responsive to the common mode signal for producing a second noise estimate signal (F_D) derived from relatively low amplitude wideband radio frequency interference in frequency bands other than said one or more narrow frequency bands, control means (60) for controlling gain and/or phase of the noise estimate signals in relation to the differential signal (S)***, means (48) for subtracting the first and second noise estimate signals from the differential signal, and means for compensating for phase differences between the common mode component in the differential signal and each of the first and second interference estimate signals before the signals are summed or added as in claim 1; and a method of canceling radio frequency noise occurring in a communications channel using a noise cancellation circuit having input means (10, 12,16,26) for connection to the communications channel (14), further comprising the steps extracting from the channel via the input means a differential

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signal (S) and a common mode signal (CM), deriving a first noise estimate signal from relatively high amplitude narrowband radio frequency interference in one or more narrow frequency bands of the common mode signal (CM), ***deriving from the common mode signal a second noise estimate signal (ED) from relatively low amplitude wideband radio frequency interference in frequency bands other than said one or more narrow frequency bands, controlling gain and/or phase of the noise estimation signals in relation to the differential signal (S)***, subtracting the first and second noise estimation signals from the differential signal, and compensating for phase differences between the common mode component in the differential signal and each of the first and second noise estimation signals as in claim 10.”

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Patent publication number US 2004/0042569 A1 and US 2002/0057751 and PCT application number WO 01/59942 issued to Jagger et al., Casabona et al. and Tulino respectively disclose a receiver having means for estimating wideband and narrow band noises.

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tesfaldet Bocure whose telephone number is (571) 272-3015. The examiner can normally be reached on Mon-Thur (7:30a-5:00p) & Mon.-Fri (7:30a-5:00p).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

T.Bocure

Tesfaldet Bocure
Primary Examiner
Art Unit 2631

